

=====

Sequence Listing could not be accepted due to errors.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2008; month=12; day=22; hr=12; min=50; sec=12; ms=831;
]

=====

Reviewer Comments:

<220>

<221> DOMAIN

<223> CDR3 amino acid sequence of BV14 clonotype derived
from SI specimen of RA patients

<400> 137

Tyr	Phe	Cs	Ala	Ser	Ser	Arg	Asp	Gly	Val	Ser	Tyr	Glu	Gln	Tyr
1				5				10				15		
Phe	Gly	Pro	Gly											

Invalid amino acid designator at location (3), Please make necessary
changes.

Application No: 10612468

Version No: 5.0

Input Set:**Output Set:****Started:** 2008-12-09 11:51:59.401**Finished:** 2008-12-09 11:52:03.076**Elapsed:** 0 hr(s) 0 min(s) 3 sec(s) 675 ms**Total Warnings:** 116**Total Errors:** 55**No. of SeqIDs Defined:** 168**Actual SeqID Count:** 168

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (1)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (2)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (2)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (16)
W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (21)
W 213	Artificial or Unknown found in <213> in SEQ ID (22)

Input Set:

Output Set:

Started: 2008-12-09 11:51:59.401
Finished: 2008-12-09 11:52:03.076
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 675 ms
Total Warnings: 116
Total Errors: 55
No. of SeqIDs Defined: 168
Actual SeqID Count: 168

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (23)
W 213	Artificial or Unknown found in <213> in SEQ ID (24)
W 213	Artificial or Unknown found in <213> in SEQ ID (25) This error has occurred more than 20 times, will not be displayed
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (76)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (78)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (80)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (82)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (84)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (86)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (88)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (90)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (92)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (94)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (96)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (98)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (100)

Input Set:

Output Set:

Started: 2008-12-09 11:51:59.401
Finished: 2008-12-09 11:52:03.076
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 675 ms
Total Warnings: 116
Total Errors: 55
No. of SeqIDs Defined: 168
Actual SeqID Count: 168

Error code	Error Description
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (102)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (104)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (106)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (108)
E 224	<220>,<223> section required as <213> has Artificial sequence or Unknown in SEQID (110) This error has occurred more than 20 times, will not be displayed
E 323	Invalid/missing amino acid numbering SEQID (137) POS (4)
E 323	Invalid/missing amino acid numbering SEQID (137)at Protein (5)
E 323	Invalid/missing amino acid numbering SEQID (137) POS (9)
E 323	Invalid/missing amino acid numbering SEQID (137)at Protein (10)
E 323	Invalid/missing amino acid numbering SEQID (137) POS (14)
E 331	Count of Protein differs from the <211> tag Input: 19

SEQUENCE LISTING

<110> Zhang, Jingwu Z.
Ho, Walter Kowk Keung
Zhang, Dongqing
Sun, Wei

<120> T Cell Receptor CDR3 Sequence and Methods for
Detecting and Treating Rheumatoid Arthritis

<130> D6622

<140> 10612468

<141> 2003-07-02

<160> 168

<210> 1
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<223> part of the complementary determining region-3 (CDR3)
in the V(16 family (BV16 gene) of T cell receptors
(TCR) in patients with rheumatoid arthritis (RA)

<400> 1
agccaagctg acgggaccca t 21

<210> 2
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<223> part of the complementary determining region-3
(CDR3) in the V(14 family (BV14 gene) of TCR in
patients with RA

<400> 2
agttccgggg gcagtcgtgtt c 21

<210> 3
<211> 7
<212> PRT
<213> Homo sapiens

<220>
<221> PEPTIDE
<223> conserved amino acid sequence derived from CDR3 of
TCR beta-chain BV16 in patients with RA

<400> 3

Ser Gln Ala Asp Gly Thr His

1 5

<210> 4

<211> 7

<212> PRT

<213> Homo sapiens

<220>

<221> PEPTIDE

<223> conserved amino acid sequence derived from CDR3 of
TCR beta-chain BV14 in patients with RA

<400> 4

Ser Ser Gly Gly Ser Leu Phe

1 5

<210> 5

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<221> PEPTIDE

<223> amino acid sequence motif derived from CDR3 of TCR
beta-chain BV16 in patients with RA

<400> 5

Ser Trp Gly Gly

1

<210> 6

<211> 113

<212> PRT

<213> Homo sapiens

<220>

<221> DOMAIN

<223> amino acid sequence of human (beta-chain variable
region V14 of T cell receptors

<400> 6

Met Gly Pro Gln Leu Leu Gly Tyr Val Val Leu Cys Leu Leu Gly

1 5 10 15

Ala Gly Pro Leu Glu Ala Gln Val Thr Gln Asn Pro Arg Tyr Leu

20 25 30

Ile Thr Val Thr Gly Lys Lys Leu Thr Val Thr Cys Ser Gln Asn

35 40 45

Met Asn His Glu Tyr Met Ser Trp Tyr Arg Gln Asp Pro Gly Leu

50 55 60

Gly Leu Arg Gln Ile Tyr Tyr Ser Met Asn Val Glu Val Thr Asp

65 70 75

Lys Gly Asp Val Pro Glu Gly Tyr Lys Val Ser Arg Lys Glu Lys

80 85 90

Arg Asn Phe Pro Leu Ile Leu Glu Ser Pro Ser Pro Asn Gln Thr

95 100 105

Ser Leu Tyr Phe Cys Ala Ser Ser

```

<210> 7
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> DOMAIN
<223> amino acid sequence of human (beta-chain variable
      region V(16 of T cell receptors

<400> 7
Ile Glu Ala Gly Val Thr Gln Phe Pro Ser His Ser Val Ile Glu
1      5      10      15
Lys Gly Gln Thr Val Thr Leu Arg Cys Asp Pro Ile Ser Gly His
      20      25      30
Asp Asn Leu Tyr Trp Tyr Arg Arg Val Met Gly Lys Glu Ile Lys
      35      40      45
Phe Leu Leu His Phe Val Lys Glu Ser Lys Gln Asp Glu Ser Gly
      50      55      60
Met Pro Asn Asn Arg Phe Leu Ala Glu Arg Thr Gly Gly Thr Tyr
      65      70      75
Ser Thr Leu Lys Val Gln Pro Ala Glu Leu Glu Asp Ser Gly Val
      80      85      90
Tyr Phe Cys Ala Ser Ser
      95

<210> 8
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV1 used in real-time
      PCR analysis

<400> 8
aagcacctga tcacagcaac t                                21

<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV1 used in real-time
      PCR analysis

<400> 9
tagttcagag tgcaagtcag g                                21

<210> 10
<211> 23
<212> DNA
<213> Artificial Sequence

```

<220>
 <223> forward primer specific for TCR BV2 used in real-time
 PCR analysis

<400> 10
 gggtatctgt aagagtgga cct 23

<210> 11
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> reverse primer specific for TCR BV2 used in real-time
 PCR analysis

<400> 11
 aggatgggca ctggtcactg t 21

<210> 12
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> forward primer specific for TCR BV3 used in real-time
 PCR analysis

<400> 12
 tcgagatata tagtcaaaag gacg 24

<210> 13
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> reverse primer specific for TCR BV3 used in real-time
 PCR analysis

<400> 13
 ggtgctggcg gactccagaa t 21

<210> 14
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> forward primer specific for TCR BV4 used in real-time
 PCR analysis

<400> 14
 aagcagggat atctgtcaac gt 22

<210> 15
 <211> 21

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV4 used in real-time
 PCR analysis

 <400> 15
 ttcagggtc atgttgc tca c 21

 <210> 16
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> forward primer specific for TCR BV5 used in real-time
 PCR analysis

 <400> 16
 gatcaaaacg agaggacagc a 21

 <210> 17
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV5 used in real-time
 PCR analysis

 <400> 17
 agcaccaagg cgctcacatt ca 22

 <210> 18
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> forward primer specific for TCR BV6 used in real-time
 PCR analysis

 <400> 18
 ctcaggtgtg atccaatttc a 21

 <210> 19
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV6 used in real-time
 PCR analysis

```

<400> 19
cccccgctct gtgcgctgga t                21

<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV7 used in real-time
      PCR analysis

<400> 20
catgggaatg aaaaataaga agtct            25

<210> 21
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV7 used in real-time
      PCR analysis

<400> 21
tggctgcagg gcgtgtaggt g                21

<210> 22
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV8 used in real-time
      PCR analysis

<400> 22
ccccgccatg aggtgacaga g                21

<210> 23
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV8 used in real-time
      PCR analysis

<400> 23
gagtccttgg gttctgaggg c                21

<210> 24
<211> 21
<212> DNA
<213> Artificial Sequence

```

```
<220>  
<223> forward primer specific for TCR BV9 used in real-time  
PCR analysis  
  
<400> 24  
ccaaaatacc tggtcacaca g 21  
  
<210> 25  
<211> 22  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> reverse primer specific for TCR BV9 used in real-time  
PCR analysis  
  
<400> 25  
ccagggaatt gatgtgaaga tt 22  
  
<210> 26  
<211> 22  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> forward primer specific for TCR BV10 used in real-time  
PCR analysis  
  
<400> 26  
acctagactt ctggtcaag ca 22  
  
<210> 27  
<211> 21  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> reverse primer specific for TCR BV10 used in real-time  
PCR analysis  
  
<400> 27  
ggactggatc tccaaggta c 21  
  
<210> 28  
<211> 23  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> forward primer specific for TCR BV11 used in real-time  
PCR analysis  
  
<400> 28  
tttataggga c aggaaaga atc 23  
  
<210> 29  
<211> 21
```

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV11 used in real-time
 PCR analysis

 <400> 29
 atgtgagggc ctggcagact c 21

 <210> 30
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> forward primer specific for TCR BV12 used in real-time
 PCR analysis

 <400> 30
 caagacacaa gatcacagag aca 23

 <210> 31
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV12 used in real-time
 PCR analysis

 <400> 31
 ggcagcagac tccagagtga g 21

 <210> 32
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> forward primer specific for TCR BV13 used in real-time
 PCR analysis

 <400> 32
 tgaagacagg acagagcatg aca 23

 <210> 33
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV13 used in real-time
 PCR analysis

 <400> 33
 cacagatgtc tggggaggag c 21

```

<210> 34
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV14 used in real-time
      PCR analysis

<400> 34
acccaagata cctcatcaca gtg                23

<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV14 used in real-time
      PCR analysis

<400> 35
agaggtctgg ttggggctgg g                21

<210> 36
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV15 used in real-time
      PCR analysis

<400> 36
tcacaagac aggaagagg att                23

<210> 37
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV15 used in real-time
      PCR analysis

<400> 37
ggggatggca gactctaggg a                21

<210> 38
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV16 used in real-time
      PCR analysis

```

```

<400> 38
gtccccagc cacagcgtaa ta                22

<210> 39
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV16 used in real-time
      PCR analysis

<400> 39
cagttctgca ggctgcacct t                21

<210> 40
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV17 used in real-time
      PCR analysis

<400> 40
gtccccaaag tacctgttca ga                22

<210> 41
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV17 used in real-time
      PCR analysis

<400> 41
agctgtcggg ttcttttggg c                21

<210> 42
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV18 used in real-time
      PCR analysis

<400> 42
agacacctgg tcaggaggag g                21

<210> 43
<211> 21
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> reverse primer specific for TCR BV18 used in real-time
      PCR analysis

<400> 43
tgccgaatct cctcgacta c                                21

<210> 44
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV19 used in real-time
      PCR analysis

<400> 44
ccaggacatt tggtaaagg aaaa                                24

<210> 45
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV19 used in real-time
      PCR analysis

<400> 45
cagtgcctg tctccgggtt c                                21

<210> 46
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV20 used in real-time
      PCR analysis

<400> 46
gaccttggtg cagcctgtg                                19

<210> 47
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV20 used in real-time
      PCR analysis

<400> 47
gaggaggagc ttcttagaac t                                21

```

```

<210> 48
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV21 used in real-time
      PCR analysis

<400> 48
cccagatata agattacaga gaaa                24

<210> 49
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV21 used in real-time
      PCR analysis

<400> 49
ctggatcttg agagtggagt c                   21

<210> 50
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV22 used in real-time
      PCR analysis

<400> 50
cacagatggg acaggeagtg atc                23

<210> 51
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer specific for TCR BV22 used in real-time
      PCR analysis

<400> 51
gtctctccage ttgtgggacc g                 21

<210> 52
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer specific for TCR BV23 used in real-time
      PCR analysis

```


<400> 52
 aagagggaag cagccactct g 21

 <210> 53
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV23 used in real-time PCR analysis

 <400> 53
 cagctccaag gagctcargt t 21

 <210> 54
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> forward primer specific for TCR BV24 used in real-time PCR analysis

 <400> 54
 ccaagatacc aggttaccga gttt 24

 <210> 55
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> reverse primer specific for TCR BV24 used in real-time PCR analysis

 <400> 55
 caggctcgtt gagcggatgt c 21

 <210> 56
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> forward primer specific for TCR BV25 used in real-time PCR analysis

 <400> 56
 aaaacatctt gtcagagggg aa 22

 <210> 57
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>

```

<223> reverse primer specific for TCR BV25 used in real-time
      PCR analysis

<400>  57
tgaatctctca agcttcgtag c                               21

<210>  58
<211>  19
<212>  DNA
<213>  Artificial Sequence

<220>
<223> forward primer specific for TCR BC used in real-time PCR
      analysis

<400>  58
cagcgccctt gtgttgatg                               19

<210>  59
<211>  20
<212>  DNA
<213>  Artificial Sequence

<220>
<223> reverse primer specific for TCR BC used in real-time PCR
      analysis

<400>  59
aagcgctggc aaaagaagaa                               20

<210>  60
<211>  18
<212>  DNA
<213>  Artificial Sequence

<220>
<223> BC primer used for run-off reactions

<400>  60
cgacctcggg tgggaaca                               18

<210>  61
<211>  19
<212>  DNA
<213>  Artificial Sequence

<220>
<223> FAM (expand)-labeled BC primer used for run-off reactions

<400>  61
cacagcgacc tcgggtggg                               19

<210>  62
<211>  21
<212>  DNA
<213>  Artificial Sequence

```

```

<220>
<22> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 62
actgtgagtc tgggtgcttg t                               21

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<22> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 63
acaacgggta acttggtccc cgaa                               24

<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<22> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 64
ggtcctctac aacagtgagc caac                               24

<210> 65
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<22> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 65
aagagagaga gctgggttcc actg                               24

<210> 66
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<22> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 66
ggagagtcga gttccatca                                   19

<210> 67
<211> 24
<212> DNA
<213> Artificial Sequence

```

<220>
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 67
tgtcacagtg agcctggtcc catt 24

<210> 68
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> FAM (expand)-labeled BJ primer used for run-off reactions

<400> 68
cctggcccga agaactgtc a 21

<210> 69
<211> 24
<212> DNA
<213> Artificial